Remarks

The foregoing amendment does not involve new matter. The amendments to the specification correct minor errors and add reference numbers for features shown in the drawings. The drawings have been corrected and amended to include features discussed in the specification. The paragraph on page 10 has been amended to include dimensions of the grooves shown on pages 6 and 7 of the Revision 1.4 CompactFlash specification. This specification is discussed below. Claim 32 has been amended to address the outstanding Section 112 rejection and to further define the invention. New claims 61-68 are supported by the specification. Specifically, claim 61 is patterned after claim 32 and is supported by page 4 and page 6, line 23. Claim 62 is supported by page 11, lines 5-7. Claims 63-65 are supported by the drawings and the amendment to page 10. Claim 67 is supported by page 17, lines 22-30. Claim 68 is supported by page 16, lines 7-17. Each of the newly added claims are directed to the elected Group I invention, a method of manufacturing a base plate for a hard disc drive.

Examiner Kim is thanked for the courtesy of the telephone interview with Applicant and his attorney on January 13, 2005. In addition to the information in the Examiner's Interview Summary, the following is noted regarding the interview. Four documents were sent by e-mail to the Examiner prior to the interview. In order to make a complete record of the interview, copies of the documents are attached hereto. First, Applicant provided the Examiner with a six page PDF document relating to the Seagate ST1 Series hard disc drive. The document was a collection of several items. The first page was a print out from Seagate's web page http://www.seagate.com/newsinfo/products/consumer_electronics/ dated January 12, 2005. The second is a photograph of a Seagate hard disc drive as described on the web page, and the last four pages were extracts from Seagate's ST1 Series Product Manual, Rev. A. (undated). As explained during the interview, Applicant has been working with Seagate and has disclosed the present invention to Seagate. Seagate has now come out with a product embodying Applicants' invention, namely the ST1 series hard disc drives.

The second document provided prior to the interview was five pages extracted from the Compact Flash Association CF+ and CompactFlash Specification Revision 2.1, dated May 6, 2004. Since the interview, Applicant's attorney has obtained a copy of the earlier Revision 1.4 of the same specification, printed in July 1999, and which was believed to be in effect as of the October 25, 2001 filing date of the present application. A seven page extract from the Revision 1.4 version of the specification is submitted herewith, along with the five page document from the later revision provided prior to the interview. Both of the documents are presented to show what the Type I and Type II product dimensions and configurations were that Applicant referred to in the specification, and as discussed during the interview. The older version of the specification is presented just to show that the dimensions and configurations discussed in the interview were in effect when Applicant filed the present application.

The third document provided prior to the interview was a proposed set of formal drawings for this case. Those drawings are submitted herewith (marked as "Replacement Sheets"), along with an annotated mark-up showing changes in red between this formal set of drawings and the drawings previously submitted on May 28, 2002.

The fourth document submitted was a two page document with some proposed claim amendments. During the interview it was decided that claim 32 did not need to be amended as proposed. However, the proposed claim 32 has now been submitted as new claim 69. The other proposed new claims, with some minor modifications, are included in the forgoing set of claims.

As noted in the Examiner's Interview Summary, claims 32 and new claims 61-68 were discussed. In addition to Japanese Patent Publication No. JP 59215843 A (Natsuume), U.S. Patent No. 5,650,896 (Viskochil) was also briefly discussed. The principal proposed amendments discussed are outlined above. The general thrust of the principal argument presented is included in the remarks that follow. The other items discussed during the interview were 1) an explanation of various aspects of the invention and how it came about, 2) the support in the specification for the amendments, drawing changes and new claims, and 3) Applicant's concern that a Chinese company would soon be infringing the claims of the application.

In the outstanding Office Action, the title, specification and drawings were objected to. The title and specification are being amended as requested. The drawings were objected to because Fig. 1 was not labeled as prior art. That deficiency has been corrected in the attached formal drawings. As discussed during the interview, the drawings have been revised to explicitly show features now recited in the claims. However, these features are either described explicitly in the specification, or impliedly by reference to the Type I and Type II Flash memory devices described on pages 4 and 11 of the specification.

In the outstanding Office Action, claims 15-17, 19-22, 24-26, 28, 32 and 60 were objected to. The forgoing amendment to claim 32 overcomes the objection.

In the outstanding Office Action, claim 32 was rejected under 35 U.S.C. § 102(b) as anticipated by Japanese Patent No. 59-215843 A (Natsuume). This rejection is respectfully traversed. Claim 32 is directed to a method of making a base plate for a hard disc drive. As explained during the interview, Natsuume does not disclose a hard disc drive base plate, nor would it have been obvious to use the method of Natsuume to make a hard disc drive base plate with body features as called for by claim 32.

In the outstanding Office Action, claims 15-17, 20-22, 24-26, 28 and 60 were rejected under 35 U.S.C. § 103(a) as obvious over Natsuume in view of Viskochil. This rejection is also respectfully traversed. These claims are all dependant on claim 32. As noted above, Natsuume does not disclose a base plate for a hard disc drive. Viskochil discloses a plastic overmolded rotary voice coil motor actuator, which may be used in a hard disc drive. However, there is nothing in Viskochil that would suggest that the base plate for the hard disc drive could be manufactured by molding body features of a hard disc drive onto a metal strip to form a base plate for the hard disc drive. Therefore Natsuume and Viskochil do not teach or make obvious the invention of claim 32, and the claims that depend thereon.

In the outstanding Office Action, claim 19 was rejected under 35 U.S.C. § 103(a) as obvious over Natsuume in view of Viskochil and U.S. Patent No. 5,966,799 (Understiller). This rejection is also respectfully traversed. Claim 19 is dependent on claim 32. As noted above, neither Natsuume not Viskochil disclose or suggest injection molding body features onto a piece of metal to form a hard disc drive base plate.

Understiller discloses a method of molding a free floating insert. However, there is no suggestion to injection mold a base plate for a hard disc drive. Thus, claim 32, and hence claim 19, is patentable over the cited references.

Claims 61, 67 and 69 also require making a base plate for a hard disc drive using injection molding a metal stamping or strip. Since this is not taught in the cited references, these claims, and the claims that are dependent thereon, are patentable over the cited references.

Many of the claims have additional limitations that make them further patentable over the cited references. Claim 61 requires that the monolithic body of phase change material molded onto the metal stamping forms body features that confirm to either a Type I or Type II compact flash memory device standard. Claim 62 requires the metal strip to have apertures which are located and configured so that they can be used to locate the base plate for subsequent steps in the manufacturing process of a hard disc drive. Claim 63 requires the body features on each base plate to including sidewalls, and each sidewall to include a longitudinal groove in the outside surface of the sidewall. Claim 64 requires certain dimensions in the grooves. Claim 65 requires the grooves to be manufactured with a specified tolerance. Claim 67 requires the phase change material to provide a vibration dampening in the range of 20-15,000 Hz of at least 2 decibels when compared to an all metal base plate. Claim 69 requires the base plate to be generally rectangular and the body features on each base plate to include sidewalls along at least two opposite sides of the base plate. Since these features are not found in the cited references, these claims are patentable for at least these additional reasons.

Since each of the rejections and objection have been overcome, the case is in condition for allowance. An early notice to that effect is respectfully requested.

Respectfully submitted,

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Dated: February 7, 2005
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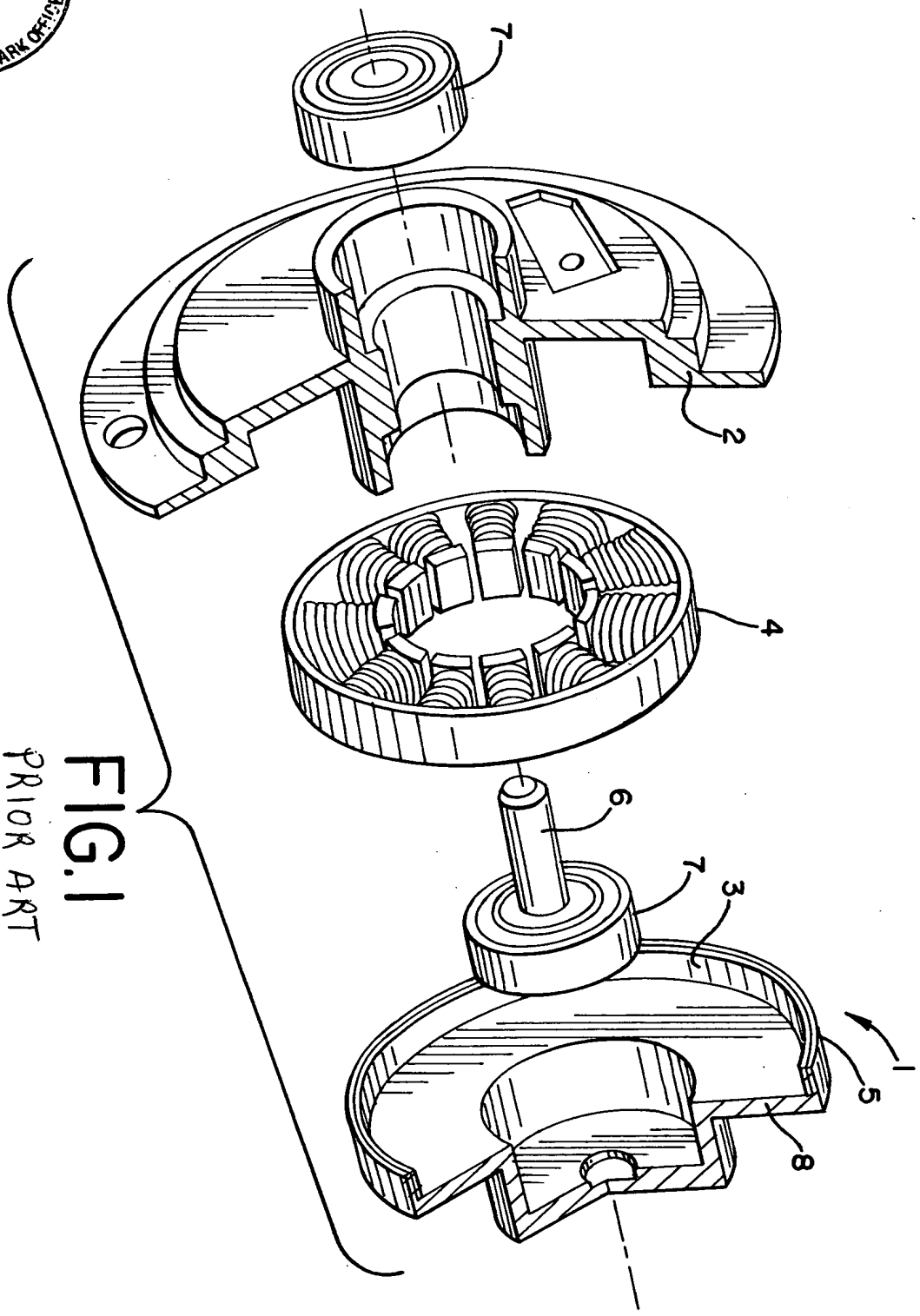


FIG.1
PRIOR ART

FIG.2

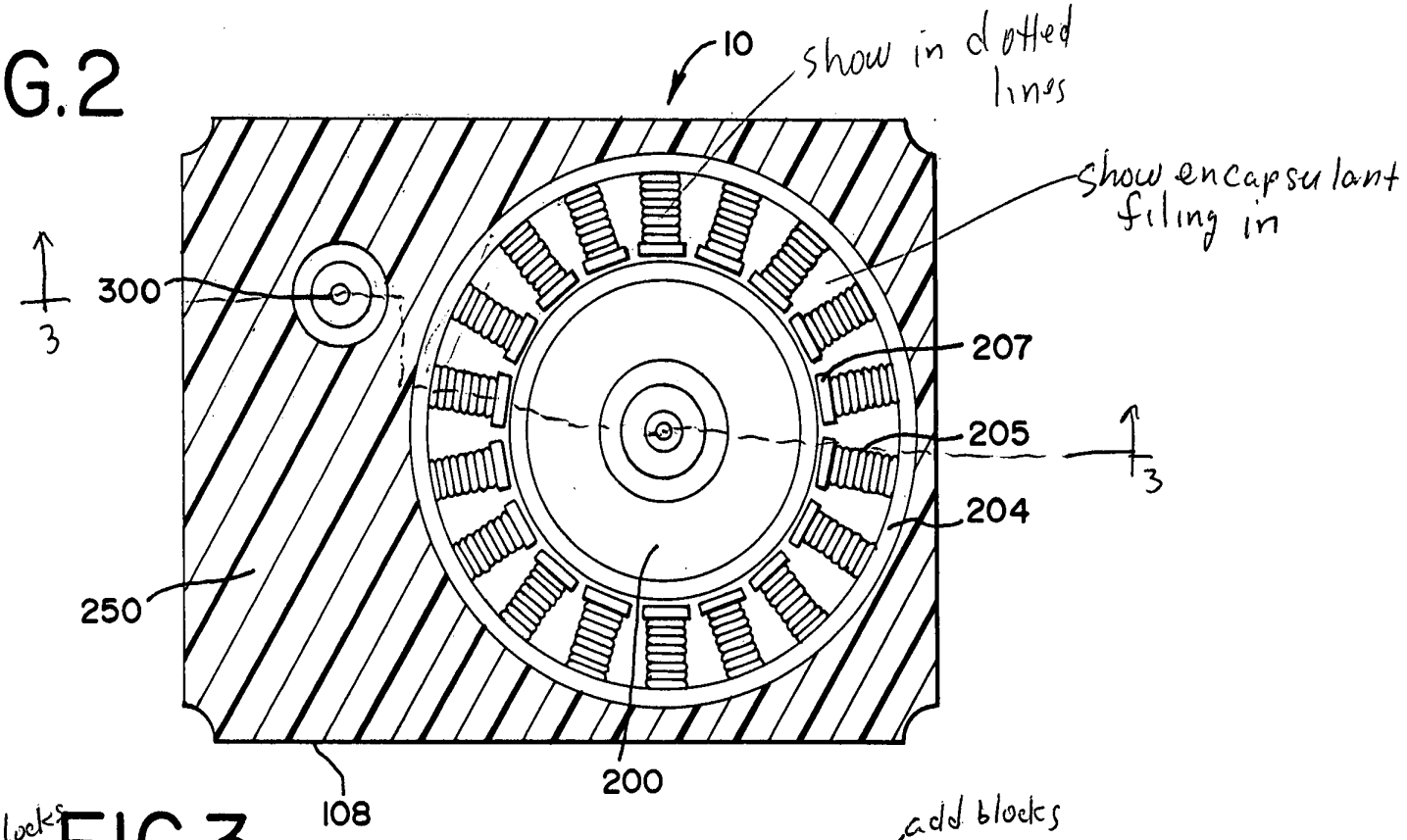


FIG.3

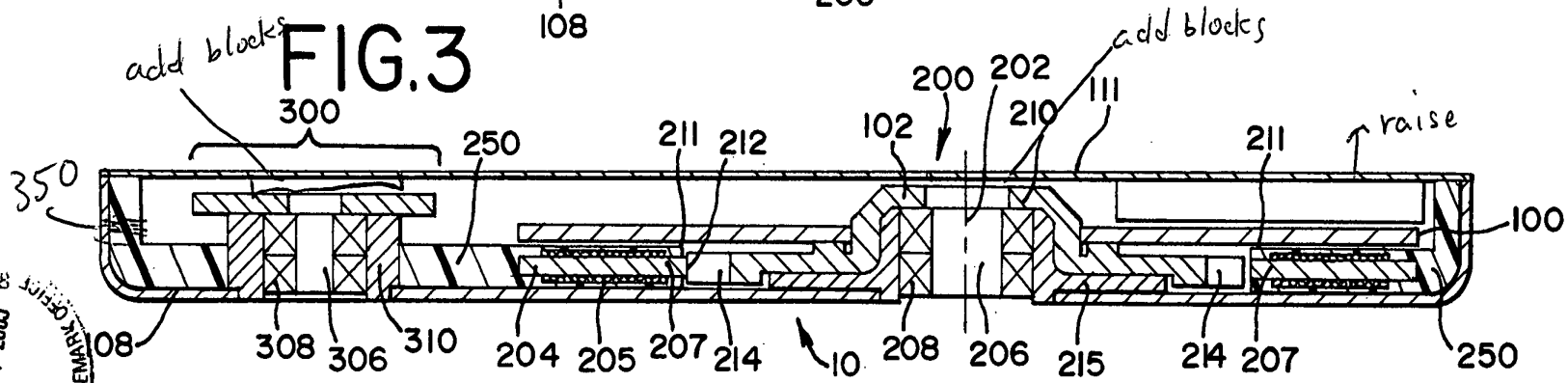


FIG.4

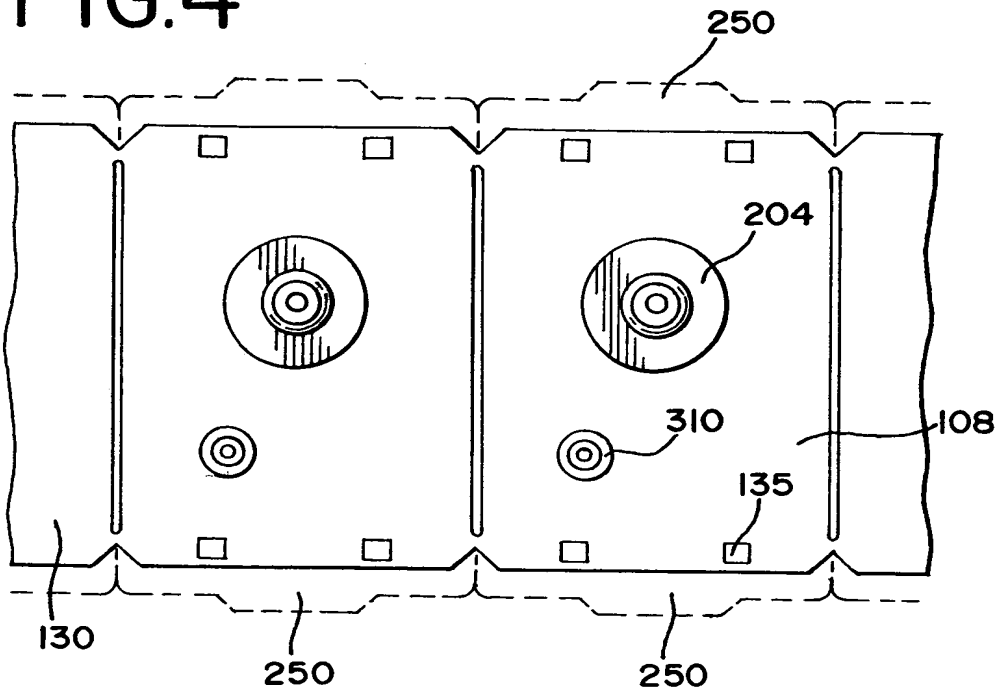


FIG.5

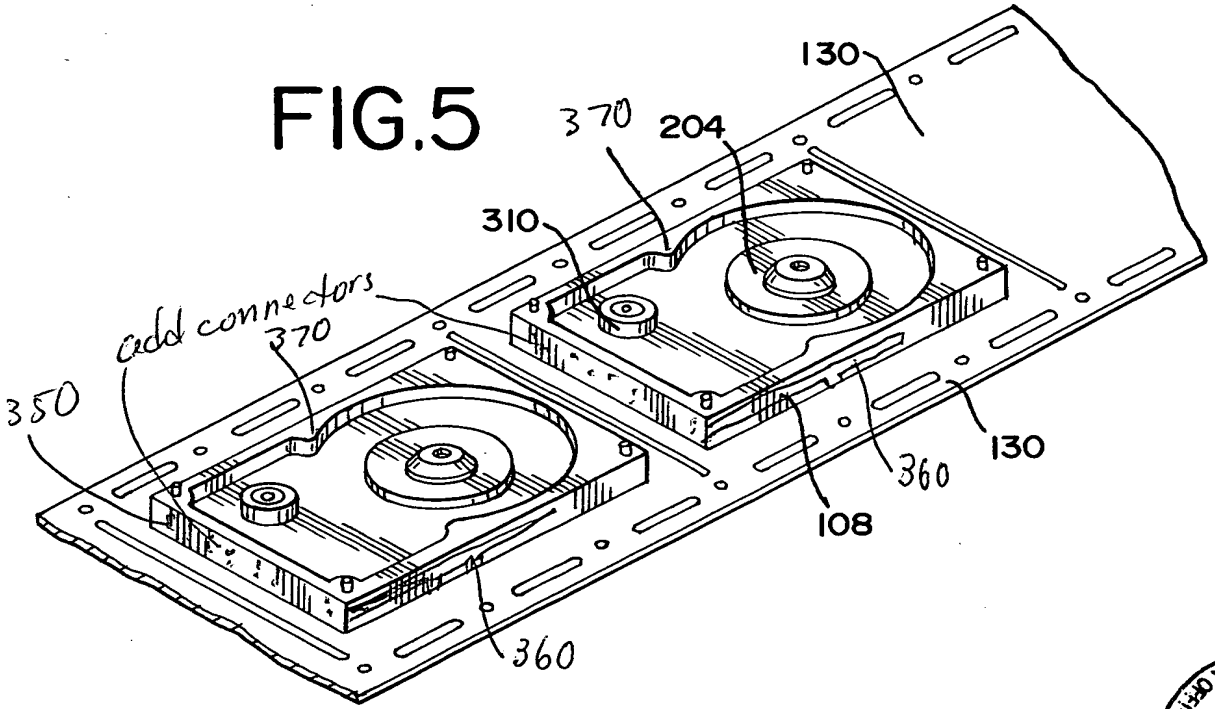
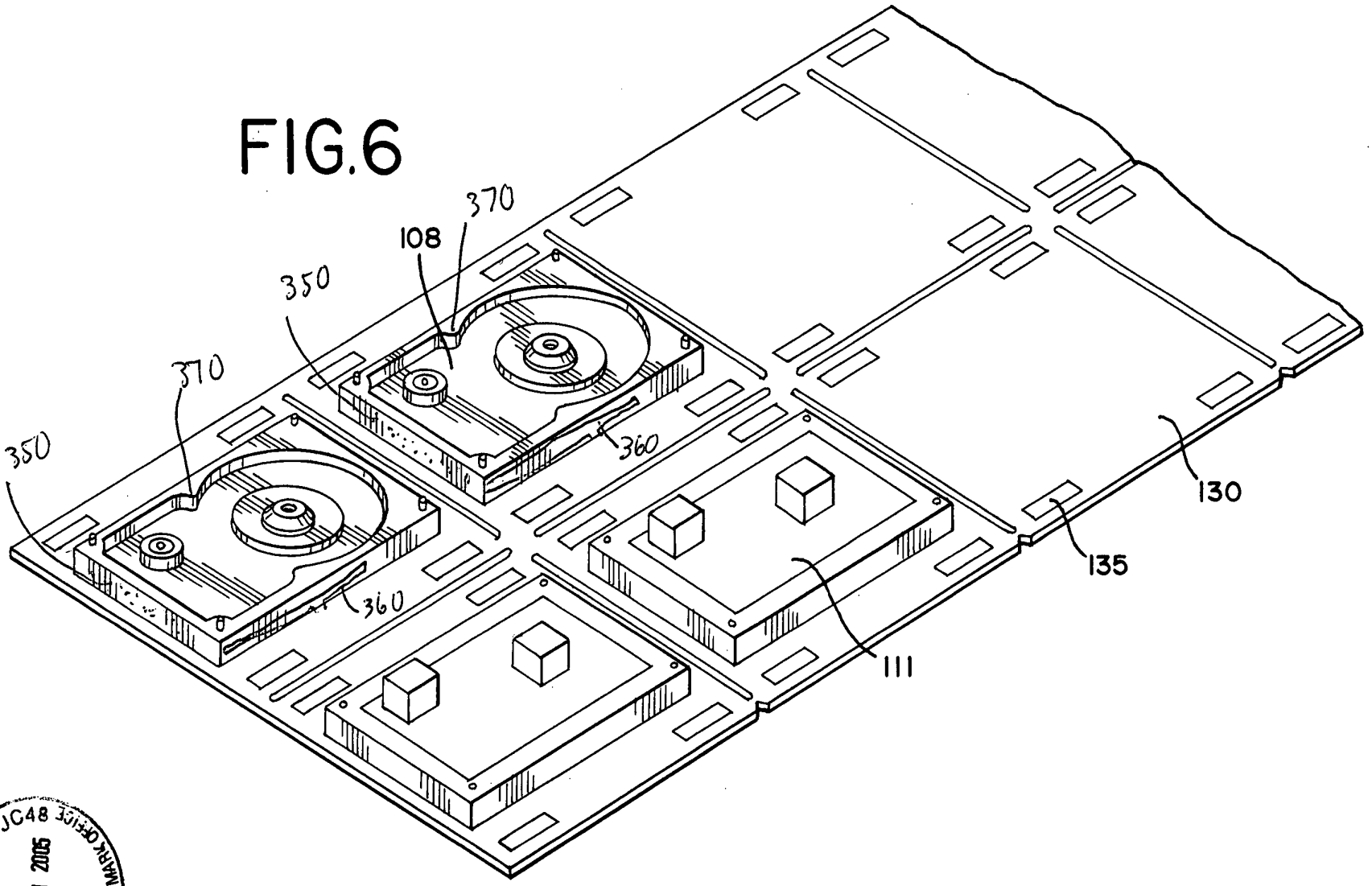


FIG.6



1/13/05

32. (Currently amended) A method of manufacturing [[a]] base [[plate]] plates for [[a]] miniature hard disc [[drive]] drives comprising:

a) providing a metal strip to be formed into a plurality of base plates; and

b) feeding the metal strip continuously through an injection molding machine to sequentially injection mold a monolithic body layer of phase change material on one or more surfaces of the metal strip to form [[multiple]] said plurality of base plates, wherein said monolithic body forms body features on each base plate, each base plate being generally rectangular and the body features on each base plate including sidewalls along at least two opposite sides of the base plate

.

61. (New) A method of manufacturing a base plate for a miniature hard disc drive comprising:

a) providing a metal stamping to be formed into a base plate; and

b) feeding the metal stamping into an injection molding machine and injection molding a monolithic body layer of phase change material on one or more surfaces of the metal stamping to form said base plate, wherein said monolithic body forms body features on the base plate conforming to either a Type I or a Type II compact flash memory device standard.

62. (New) The method of claim 32 wherein the metal strip has apertures which are located and configured in a manner such that they locate the base plate for subsequent steps in a manufacturing process of a hard disc drive.

63. (New) The method of claim 32 wherein each sidewall includes a longitudinal groove in the outside surface of the sidewall.

64. (New) The method of claim 63 wherein one of said grooves has a width of about 0.063 inches and the other of the grooves has a width of about 0.039 inches.

65. (New) The method of claim 64 wherein the grooves are manufactured with a tolerance of 0.002 inches in their width.

66. (New) A method of manufacturing a hard disc drive wherein a base plate is manufactured by the method of claim 32 and the base plate is then used to manufacture a hard disc drive.

67. (New) A method of manufacturing a base plate for a miniature hard disc drive comprising:

a) providing a metal stamping to be formed into a base plate; and

b) feeding the metal stamping into an injection molding machine and injection molding a monolithic body layer of phase change material on one or more surfaces of the metal stamping to form said base plate, wherein said phase change material provides a vibration dampening in the range of 20-15,000 Hz of at least 2 decibels when compared to an all metal base plate.

68. (New) The method of claim 61 wherein the base plate has extractable particles greater than 0.5 micrometers in size of less than ten thousand particles per milliliter.

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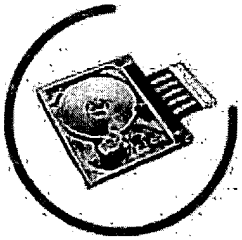
Consumer Electronics Storage

Consumer Electronics Storage Overview

With 25 years of first-to-market innovations, and a commitment to customer success, Seagate is the best partner to develop exciting new digital devices.



- New Seagate DB35 Series hard drive with 400GB capacity provides up to 400 hours of standard TV recording
- Seagate ST1 Series hard drive provides maximum capacity for mobile handheld devices like MP3 players and PDAs
- The Seagate Compact Flash Photo Hard Drive delivers maximum digital photograph and Mpeg movie capacity

Read the Consumer Electronics Storage news release

Seagate DB35 Series

Optimal performance and reliability with 400GB of capacity provides up to 400 hours of standard TV recording time.

▸ Seagate DB35 Series Product Overview (PDF)

▸ View our complete line of DVR products

Seagate ST1 Series

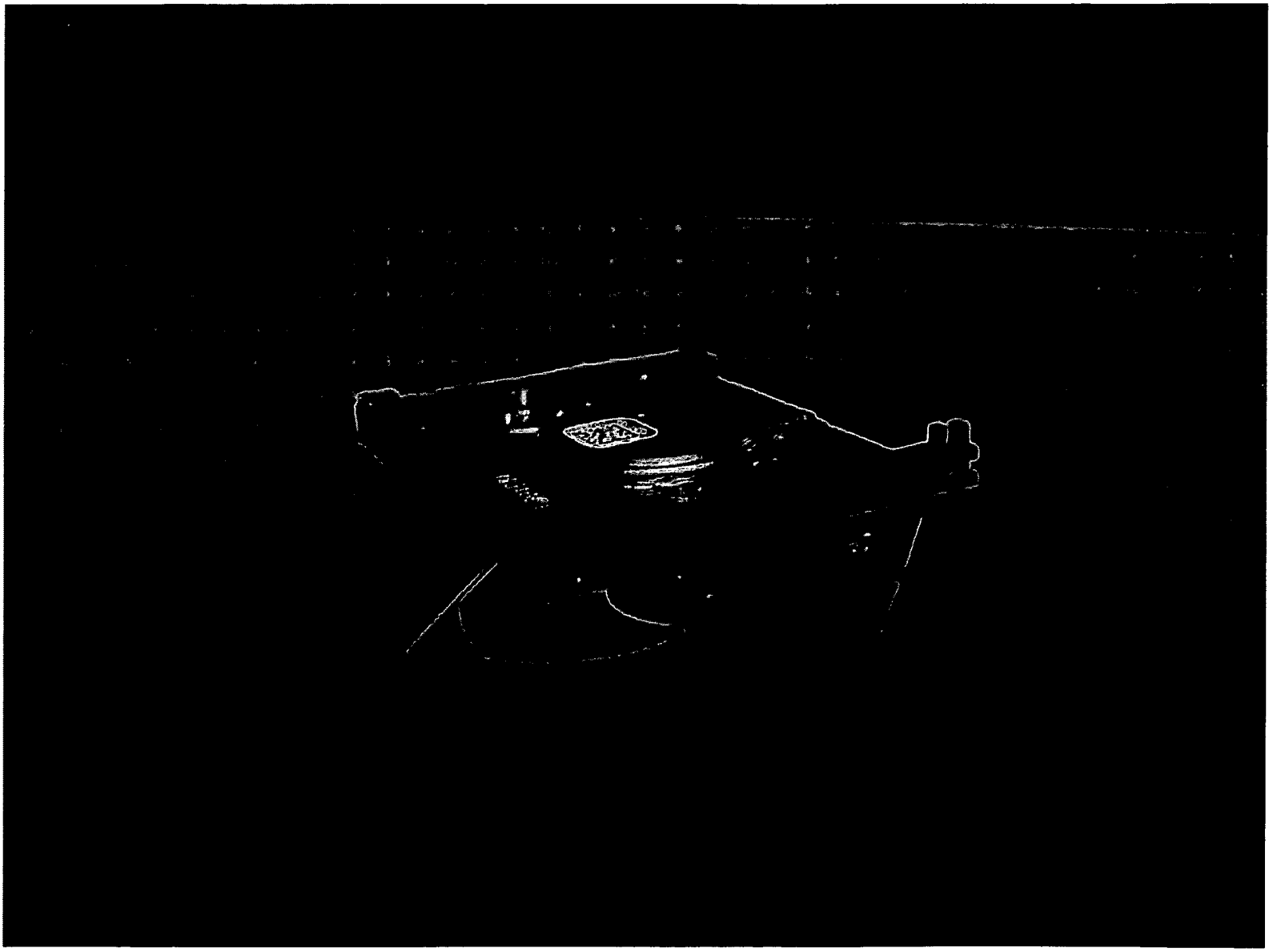
Seagate validates the market for 1-inch drives, giving media player OEMs a hard disc drive partner with global scale and support.

▸ Seagate ST1 Series Product Overview (PDF)

Seagate Compact Flash Photo Hard Drive

Seagate offers Compact Flash compatibility, unparalleled capacity and unbeatable value for digital photography storage.

▸ Seagate Compact Flash Photo Hard Drive Product Overview (PDF)



Product Manual

ST1 Series

ST650211CF

ST650211FX

ST625211CF

ST625211FX

Seagate

Contents

1.0 Introduction

This manual describes the functional, mechanical and interface specifications for the following Seagate® ST1® Series drives:

- ST650211CF and ST625211CF CompactFlash+ Type II disc drives.
- ST650211FX and ST625211FX Flex (IDE interface) disc drives.

These drives provide the following key features:

- 3,600-RPM spindle speed and 2-Mbyte buffer combine for superior performance.
- Quiet operation. Fluid Dynamic Bearing (FDB) motor.
- Giant magnetoresistive (GMR) recording heads and EPRML technology, which provide the drives with increased areal density.
- State-of-the-art cache and on-the-fly error-correction algorithms.
- 1.5K Gs nonoperating shock, and 200 Gs operating shock.
- SeaTools™ diagnostic software performs a drive self-test that eliminates unnecessary drive returns.
- The 3D Defense System™, which includes Drive Defense, Data Defense, and Diagnostic Defense, offers the industry's most comprehensive protection for disc drives.

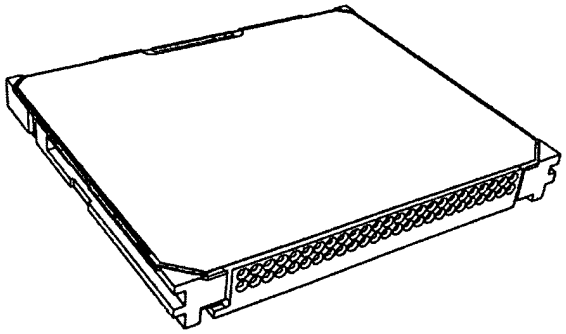


Figure 1. ST1 Series CompactFlash+ disc drive

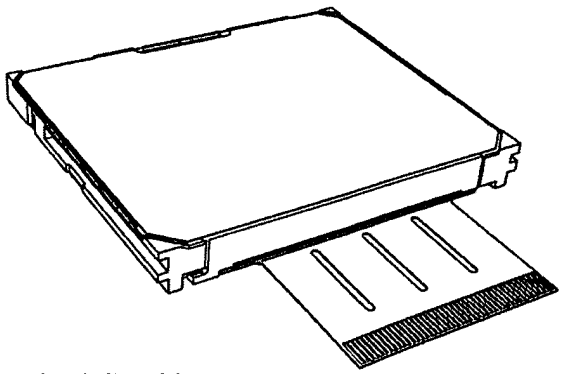
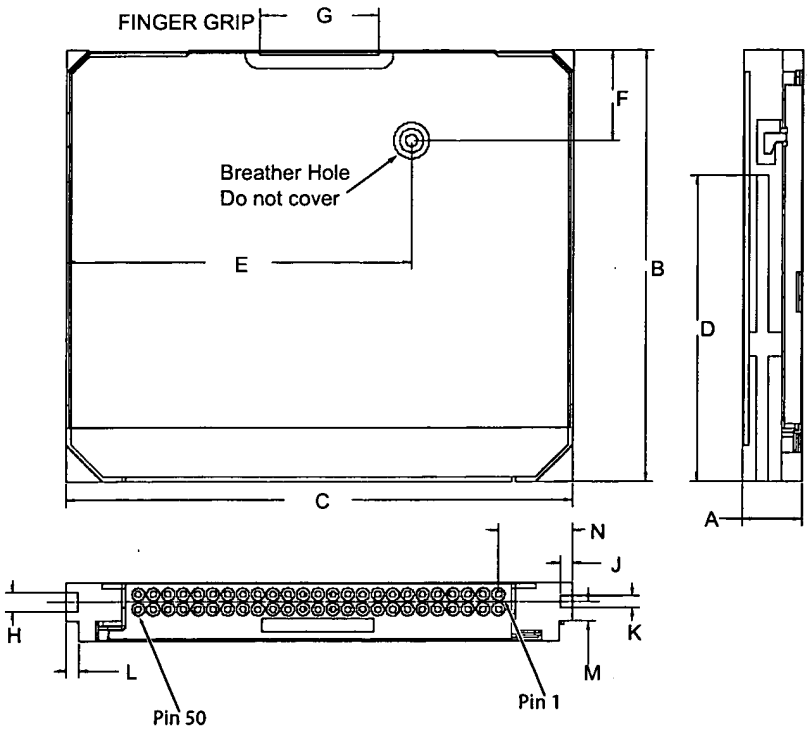


Figure 2. ST1 Series Flex (IDE interface) disc drive



Dimension Table

	Inches	Millimeters
A	0.197 max	5.00 max
B	1.433 ± .006	36.40 ± .15
C	1.685 ± .004	42.80 ± .10
D	1.015 ± .003	2x 25.78 ± .07
E	1.152 ± .010	29.25 ± .25
F	0.299 ± .010	7.61 ± .25
G	0.394 min	10.00 min
H	0.063 ± .002	1.60 ± .05
J	0.040 ± .003	2x 1.01 ± .07
K	0.039 ± .002	1.00 ± .05
L	0.039 ± .004	2x 1.00 min
M	0.065 ± .004	1.65 ± .10
N	0.243 ± .004	2x 6.16 ± .10

Figure 6. CF model mechanical dimensions—top, side and end view

CF+ and CompactFlash Specification Revision 2.1

5/6/04

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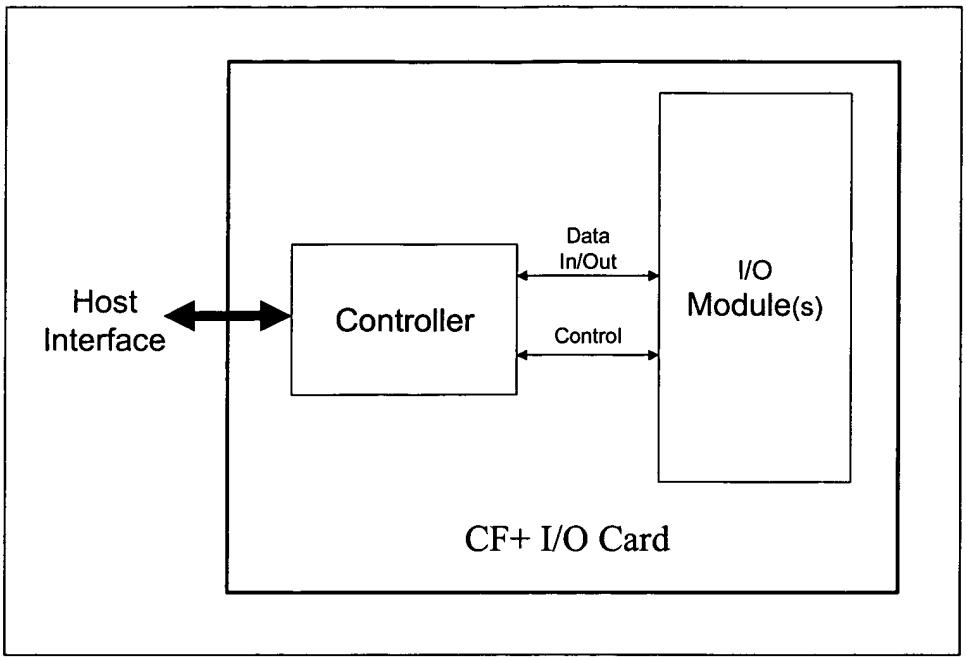


Figure 2: CF+ Card Block Diagram

3.2 CompactFlash Storage Card and CF+ Card Physical Specifications

3.2.1 CF+ & CompactFlash Type I and Type II Cards

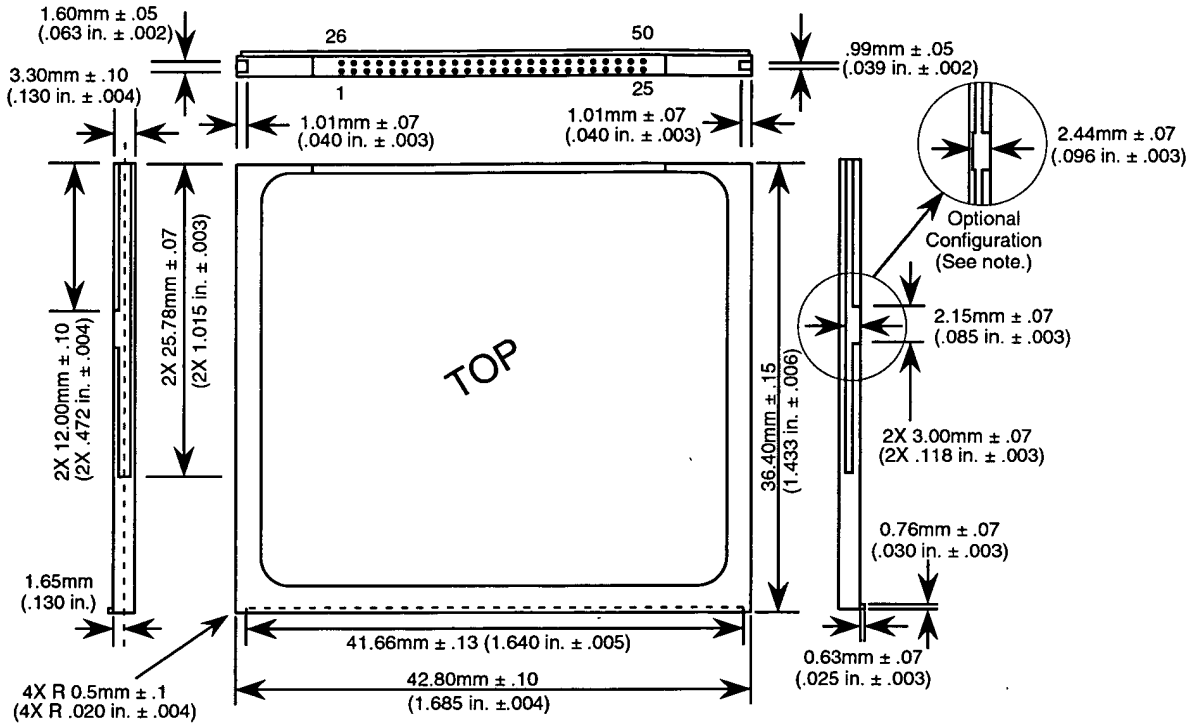
Refer to Table 1, Table 2: Type II CompactFlash Storage Card and CF+ Card Physical Specifications, Figure 3 and Figure 4 for the CompactFlash Storage Card and the CF+ Card dimensions and physical specifications.

Table 1: Type I CompactFlash Storage Card and CF+ Card Physical Specifications

Length:	36.4 ± 0.15 mm (1.433 ±.006 in.)
Width:	42.80 ± 0.10 mm (1.685 ±.004 in.)
Thickness Including Label Area:	3.3 mm ± 0.10 mm (.130 ± .004 in.)

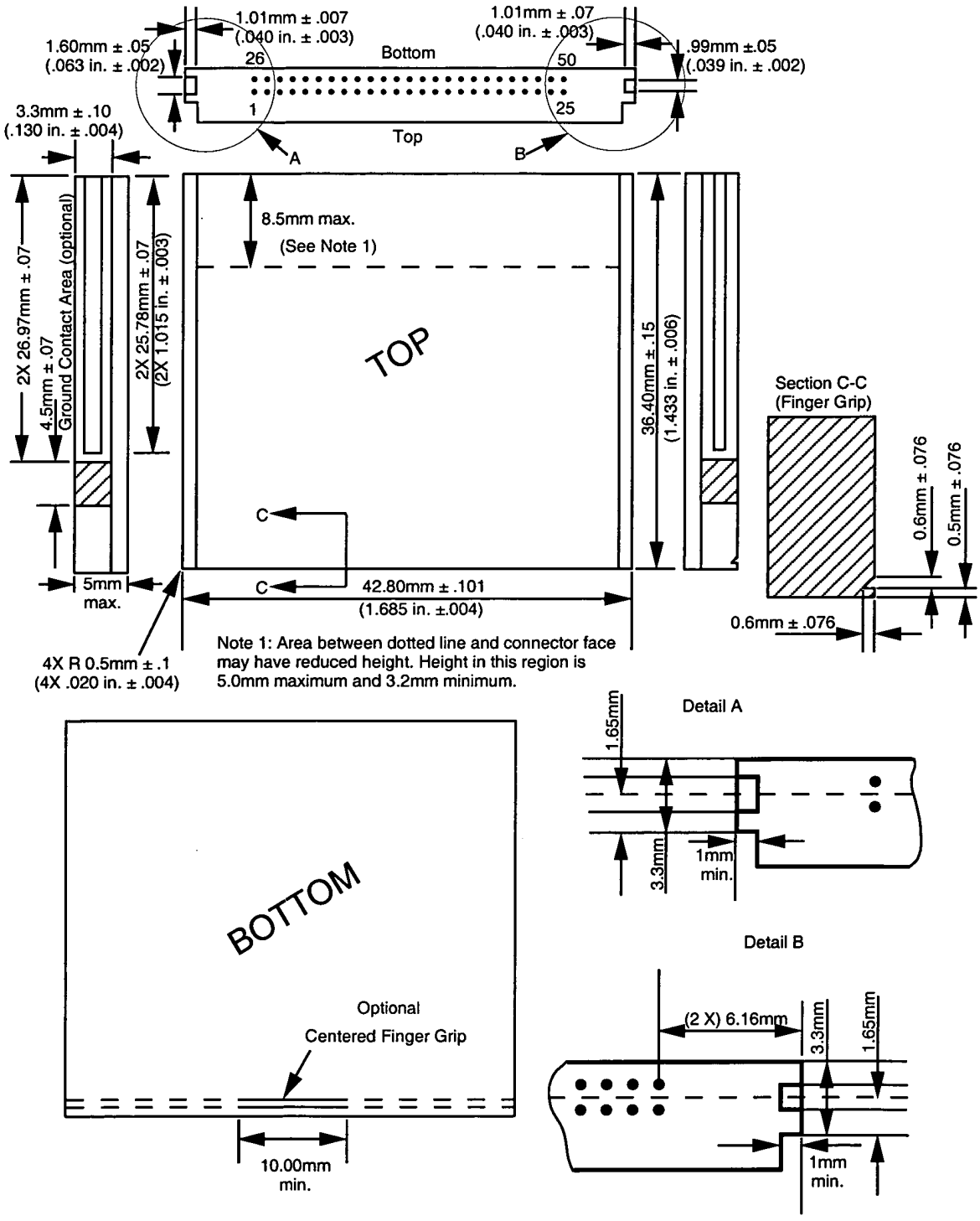
Table 2: Type II CompactFlash Storage Card and CF+ Card Physical Specifications

Length:	36.4 ± 0.15 mm (1.433 ±.006 in.)
Width:	42.80 ± 0.10 mm (1.685 ±.004 in.)
Thickness Including Label Area:	5.0 mm maximum (.1968 in. maximum)



Note: The optional notched configuration was shown in the CF Specification Rev. 1.0. In specification Rev. 1.2, the notch was removed for ease of tooling. This optional configuration can be used but it is not recommended.

Figure 3: Type I CompactFlash Storage Card and CF+ Card Dimensions



Note: the recessed centered finger grip (Section C-C) is optional although it is recommended for CF+ Type II cards. Additionally, it is recommended that Type II host slots include an ejector mechanism.

Figure 4: Type II CompactFlash Storage Card and CF+ Card Dimensions

CF+ and CompactFlash Specification Revision 1.4

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Rev. 1.4 7/99 Printed in U.S.A.

3 Card Physical

3.1 General Description

3.1.1 CompactFlash Storage Card

The CompactFlash Storage Card contains a single chip controller and flash memory module(s) in a matchbook-sized package with a 50-pin connector consisting of two rows of 25 female contacts each on 50 mil (1.27 mm) centers. The controller interfaces with a host system allowing data to be written to and read from the flash memory module(s).

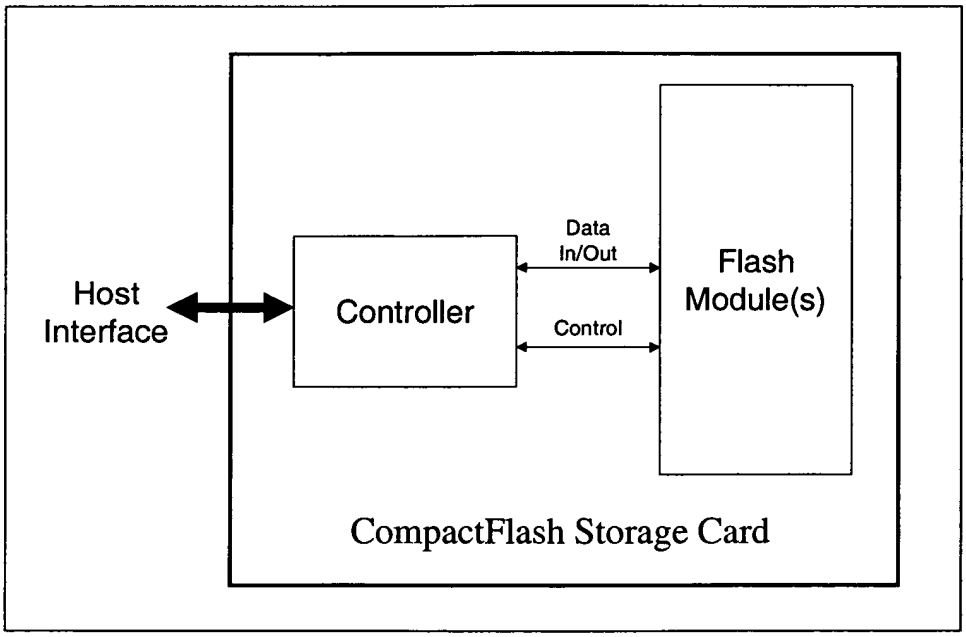


Figure 1: CompactFlash Storage Card Block Diagram

3.1.2 CF+ Card

The CF+ card contains functions other than ATA flash memory, such as I/O (serial port, modem, LAN, etc) or non-flash storage (hard disk drive). Physical specifications are identical to CompactFlash cards (either Type I or Type II).

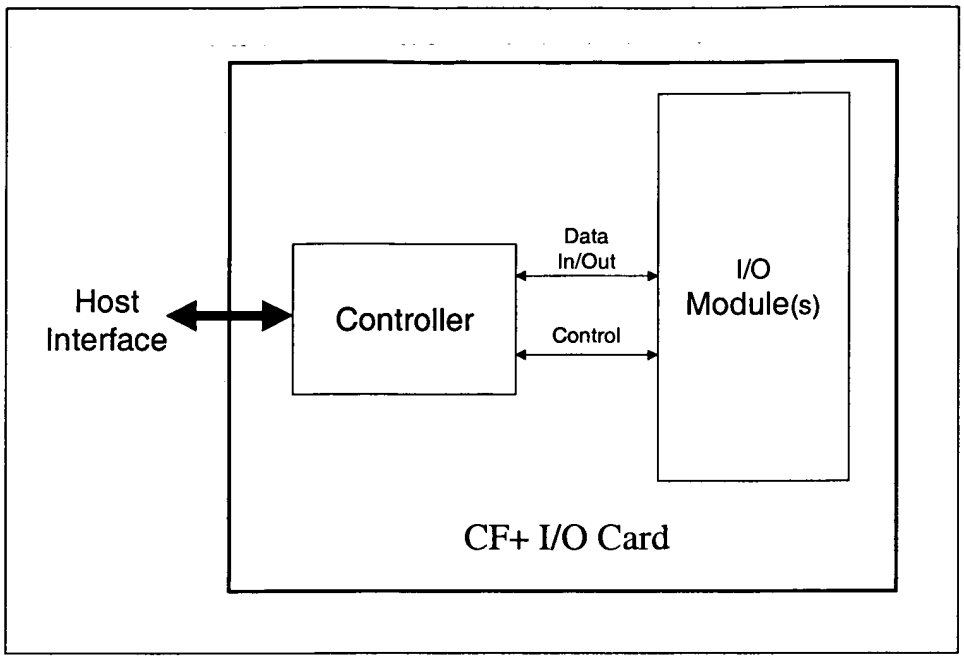


Figure 2: CF+ Card Block Diagram

3.2 CompactFlash Storage Card and CF+ Card Physical Specifications

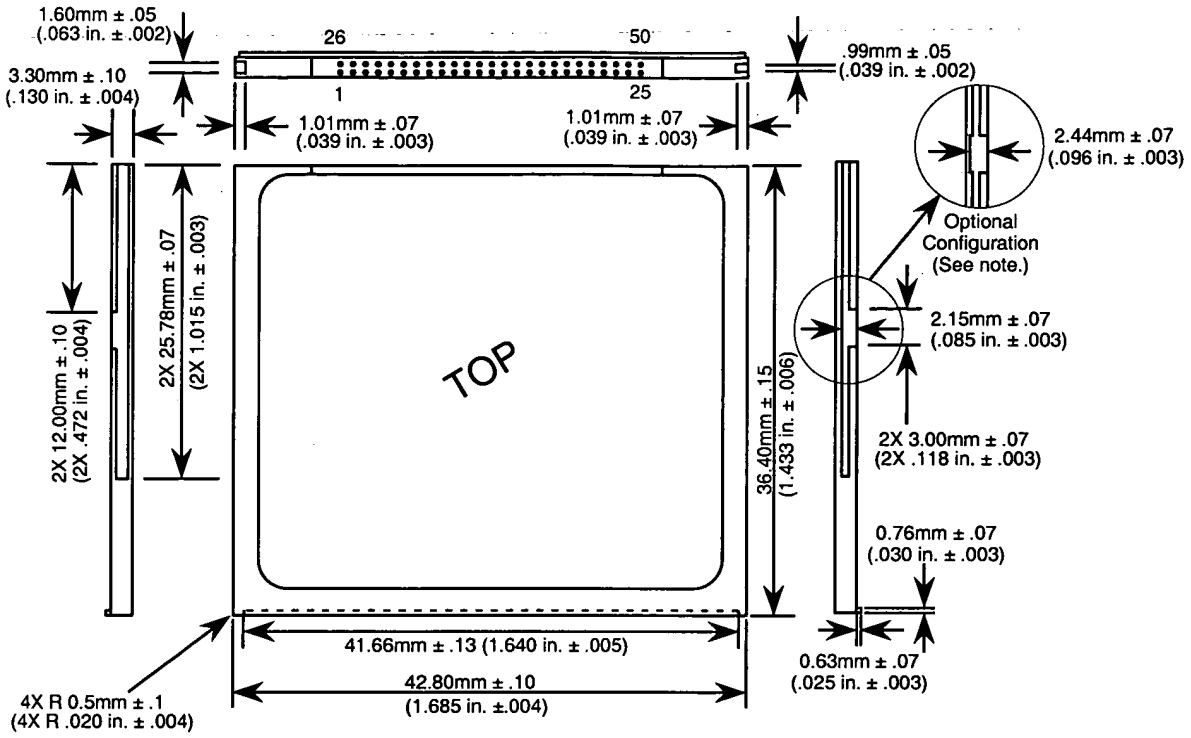
Refer to *Table 1*, *Table 2*, *Figure 3* and *Figure 4* for the CompactFlash Storage Card and the CF+ Card dimensions and physical specifications.

Table 1: Type I CompactFlash Storage Card and CF+ Card Physical Specifications

Length:	36.4 ± 0.15 mm (1.433 ±.006 in.)
Width:	42.80 ± 0.10 mm (1.685 ±.004 in.)
Thickness Including Label Area:	3.3 mm ± 0.10 mm (.130 ± .004 in.)

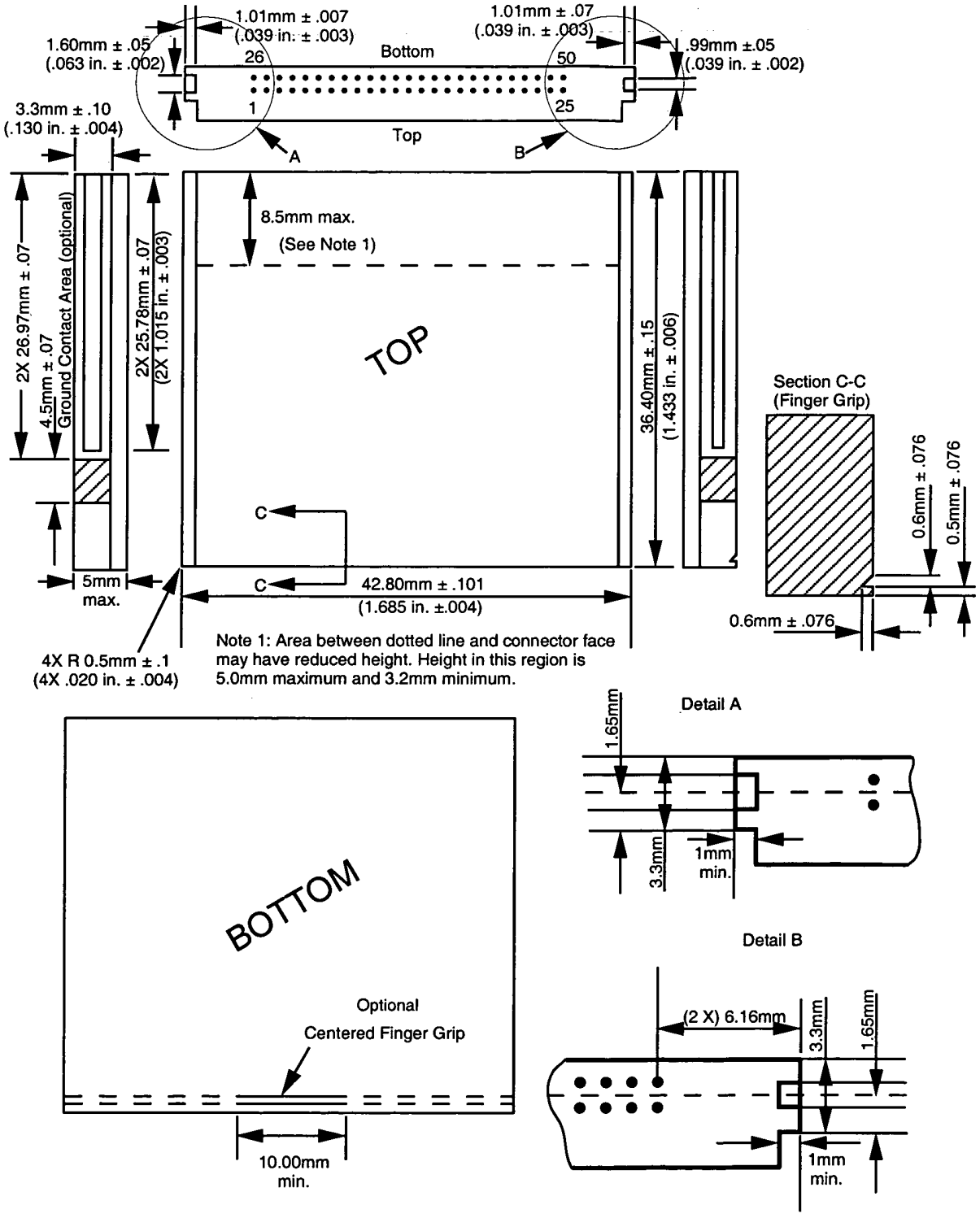
Table 2: Type II CompactFlash Storage Card and CF+ Card Physical Specifications

Length:	36.4 ± 0.15 mm (1.433 ±.006 in.)
Width:	42.80 ± 0.10 mm (1.685 ±.004 in.)
Thickness Including Label Area:	5.0 mm maximum (.1968 in. maximum)



Note: The optional notched configuration was shown in the CF Specification Rev. 1.0. In specification Rev. 1.2, the notch was removed for ease of tooling. This optional configuration can be used but it is not recommended.

Figure 3: Type I CompactFlash Storage Card and CF+ Card Dimensions



Note: the recessed centered finger grip (Section C-C) is optional although it is recommended for CF+ Type II cards. Additionally, it is recommended that Type II host slots include an ejector mechanism.

Figure 4: Type II CompactFlash Storage Card and CF+ Card Dimensions